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|---|-------------|----------------------|---------------------|------------------|--|
| 10/555,477  | 09/13/2006  | Brian B. Filippini   | 3239-01             | 4244             |  |
| 7590  | 04/22/2011  |                      | EXAMINER            |                  |  |
| Teresan W Gilbert<br>The Lubrizol Corporation<br>Patent Administrator Mail Drop 022B<br>29400 Lakeland Blvd<br>Wickliffe, OH 44092-2298 |             | KENNEDY, NICOLETTA   |                     |                  |  |
|   |             | ART UNIT             | PAPER NUMBER        |                  |  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/555,477             | FILIPPINI ET AL.    |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | NICOLETTA KENNEDY      | 1611                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 14 February 2011.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-3,7,8,12-17 and 19 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-3,7,8,12-17 and 19 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 03 November 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____ .                        |

## **DETAILED ACTION**

### ***Status of Claims***

Claims 1-3, 7-8, 11, 17 and 19 are currently under examination.

### ***Priority***

This application, filed November 3, 2005, is a national stage entry of PCT/US04/14336, filed May 7, 2004, and claims priority to provisional application 60/468439, filed May 7, 2003.

### ***Withdrawn Objections and Rejections***

1. The objections to claims 1 and 19 are withdrawn.
2. The rejection of claims 1-3, 7-8, 11 and 17-19 are withdrawn in view of Applicant's amendments and cancellation of claim 18.

### ***New Claim Objection Necessitated by Amendment***

3. Claim 11 is objected to because of the following informalities: the limitation "wherein the composition comprises oil phase additives is selected from" does not make grammatical sense.

### ***Modified Rejections Necessitated by Amendment***

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. **Claims 1-2, 7-8, 11, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodham et al. (US 2002/0025986) (pub. Feb. 28, 2002) in view of Taranta (WO 02/089573) (pub. Nov. 14, 2002) and Griffin (Classification of Surface-Active Agents by "HLB", 1949).**

The rejections of record are modified to include address the claim limitation of former claim 18, now incorporated into claim 1.

The claims are directed to a multiple W/O/W emulsion comprising a polyisobutylene succinic-anhydride-derived emulsifier in the W<sub>1</sub>/O emulsion.

Regarding claims 1-2, 17 and 19, Rodham et al. teach a water-in-oil-in-water multiple emulsion comprising a continuous aqueous phase having dispersed therein wherein the oil phase droplets themselves each contain dispersed “inner” aqueous phase droplets (para. 0002). Especially preferred polymeric surfactants capable of stabilizing the internal phase used to form the initial water-in-oil emulsion ( $W_1/O$ ) include the reaction product of polyisobutylene-succinic anhydride (PIBSA) and ethanolamine (paras. 0014-0016). A second surfactant is used to disperse the water-in-oil emulsion ( $W_1/O$ ) into the aqueous phase ( $W_2$ ) in order to form the multiple emulsion (para. 0018). The external phase may comprise a thickening agent to increase viscosity (para. 0024). Additionally, either surfactant may be a mixture of surfactants (co-surfactants) (para. 0024). The multiple emulsion is particularly suitable for the manufacture of slow-release formulations of water-soluble herbicides, a type of horticulture or agriculture product (para. 0047). The primary emulsifier in example 1, ATLOX 4912, is present at 0.46% by weight (p. 7, table 1, example 1) and it would have been within the purview of a skilled artisan to substitute the reaction product of PIBSA and ethanolamine for ATLOX 4912 because Rodham et al. teach that the reaction product of PIBSA and ethanolamine may be used as the primary emulsifier.

However, Rodham et al. fail to teach the mean diameter of the internal water-in-oil emulsion droplets. Taranta cures this deficiency. Further, Rodham et al. fail to teach the HLB of the secondary emulsifier. Griffin cures this deficiency.

Taranta teaches a pesticide oil-in-water-in-oil emulsion which is useful for controlling weeds, diseases and pests (abstract). Taranta teaches that multiple

emulsions preferably have a multiple drop size in the range of 3 to 24 microns and that the inner oily phase droplets should have a mean diameter of lower than 1.5 microns to ensure stability in the final emulsion (pp. 3 and 9).

Griffin teaches that an oil-in-water emulsifier has an HLB of about 8-18 (Griffin, p. 314). MPEP 2144.05 states that “[i]n the case where the claimed ranges ‘overlap or lie inside ranges disclosed by the prior art’ a *prima facie* case of obviousness exists” quoting *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of Rodham et al. with those of Taranta to have internal water phase droplets of less than 1.5 microns and water-in-oil droplets of 3 to 24 microns. One would have been motivated to do so because Taranta teaches that this improves the multiple emulsion stability. Although Taranta teaches an O/W/O emulsion, the benefit of small droplet size on stability would be expected to be the same for W/O/W multiple emulsions, especially since Taranta reference several W/O/W multiple emulsions in their background section.

Further, it would have been *prima facie* obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of Rodham et al. and Taranta with those of Griffin to use an oil-in-water emulsifier with an HLB between 8 and 20. One would have been motivated to do so because Rodham et al. teach an oil-in-water emulsifier and Griffin teaches that such an emulsifier has an HLB within the claimed range.

With regard to the mean diameter ranges, MPEP 2144.05 states that “[i]n the case where the claimed ranges ‘overlap or lie inside ranges disclosed by the prior art’ a *prima facie* case of obviousness exists” quoting *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). In the instant case, the claimed ranges overlap or lie within the ranges of the prior art and are therefore *prima facie* obvious.

Regarding claim 7, Rodham et al. teach that the primary emulsifier may comprise a mixture of surfactants and surfactants that may be used as the primary emulsifier include the reaction product of polyisobutylene-succinic anhydride and ethanolamine and sorbitan monooleate or lecithin (para. 0017).

Regarding claim 8, Rodham et al. teach that distilled water is present at 40.08% by weight of the internal emulsion and the diesel oil is present at 21.75% (p. 8, example 8). Distilled water has been deionized and demineralized. The internal water-in-oil emulsion is present at 60.31 to 39.69.

Regarding claim 11, Rodham et al. teach that the secondary emulsifier may be sorbitan esters condensed with various molar proportions of ethylene oxide (para. 0021). The secondary emulsifier is suitably present up to about 0.5% (para. 0062). MPEP 2144.05 states that “[i]n the case where the claimed ranges ‘overlap or lie inside ranges disclosed by the prior art’ a *prima facie* case of obviousness exists” quoting *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). In the instant case, the claimed ranges overlaps the range of the prior art and is therefore *prima facie* obvious. Rodham et al. further teach that the thickening agent is optional, and therefore may be present at 0% (para. 0024). Rodham et al. teach that the multiple emulsion comprises 2.0% by

weight sodium chloride (an inorganic salt) (p. 7, table 1, example 1). No water-dispersible additives or oil phase additives are present and are thus present at 0% by weight (p. 7, table 1, example 1).

***Response to Arguments***

Applicant's arguments filed February 14, 2011 have been fully considered but they are not persuasive. Applicant argues that 1) there is no teaching or data in Rodham et al. that the polymer need not be encapsulated and associated with the oil phase droplets or inner dispersion of aqueous phase droplets; 2) that there is no disclosure of the droplet size for the internal water-in-oil emulsion and that Taranta does not disclose the stabilization of W/O/W by adjusting water droplet size.

First, the instant claims do not preclude encapsulation of the aqueous phase or oil phase droplets. Second, although Taranta is directed to a different type of multiple emulsion than Rodham et al., an O/W/O multiple emulsion, Taranta teaches that interior droplet size of less than 1.5 microns ensures good stability and quality of the emulsion. Thus, it would have been within the purview of the skilled artisan to use an interior particle size of less than 1.5 microns to ensure good stability and quality of a multiple emulsion. Put another way, having an interior droplet size of less than 1.5 microns in a multiple emulsion is a known method of stabilizing a multiple emulsion.

8. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rodham et al. (US 2002/0025986) (pub. Feb. 28, 2002) in view of Taranta (WO 02/089573) (pub. Nov. 14, 2002) and Griffin (Classification of Surface-Active Agents by "HLB", 1949) as applied to claims 1-2, 7-8, 11, 17 and 19 above, and**

**further in view of Hueffer et al. (WO 2002/070633) (pub. Sept. 12, 2002) (English machine translation).**

The claims are directed to a polyisobutlenylamine emulsifier used as a water-in-oil emulsifier in a multiple emulsion.

Rodham in view of Taranta and Griffin teach each limitation of claim 1 but fail to teach that the primary emulsifier is a polyisobutlenyl amine. Hueffer et al. cure this deficiency.

Hueffer et al. teach that polyisobutlenyl amines are used as emulsifiers for water-in-oil emulsions (p. 1). Hueffer et al. teach that it is known to use polyisobutlenyl succinic anhydride as emulsifiers as well (p. 1).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of Rodham et al., Taranta and Griffin with those of Hueffer et al. to substitute a polyisobutlenylamine emulsifier for the polyisobutlenyl succinic anhydride of Rodham et al. One would have been motivated to do so because both polyisobutlenylamine and polyisobutlenyl succinic anhydride are known water-in-oil emulsifier used to form a water-in-oil emulsion.

### ***Response to Arguments***

Applicant's arguments filed February 14, 2011 have been fully considered but they are not persuasive. Applicant argues that this rejection should be withdrawn because Hueffer et al. do not cure the deficiencies of the primary rejection. Because the primary rejection is maintained, this rejection is maintained as well.

***Conclusion***

No claims are allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicoletta Kennedy whose telephone number is (571)270-1343. The examiner can normally be reached on Monday through Friday 11:30 to 8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sharmila Gollamudi Landau can be reached on 571-272-0614. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. K./  
Examiner, Art Unit 1611

/Anne R Kubelik/  
Primary Examiner, Art Unit 1638